Hazelwood Schools

Computing

Curriculum Overview

Computing at Hazelwood

Intent

At Hazelwood Schools, we believe that our children should be equipped to participate in a rapidly changing world where work and leisure activities are increasingly reliant on technology. Through offering purposeful, relevant, practical experiences we enable our children to develop their understanding and use of technology, empowering them to become safe, respectful and effective users who communicate ideas well by utilising technology and devices throughout all areas of the curriculum.

The aims of our Computing curriculum are:

- To provide children with a high-quality, computing education that produces competent, confident computer users, who are digitally literate by the time they leave the school.
- To provide pupils with a range of opportunities to use a variety of different software and hardware.
- To develop skills in finding, selecting, using and presenting information with judgement.
- To ensure children know how to use technology respectfully and safely.
- To ensure that our children have a secure knowledge of online safety and have the skills to tackle inappropriate content they might encounter online.
- To develop children as computational thinkers to enable them to solve problems across the whole curriculum and life in general.
- To use technology to enhance teaching across all subject areas and to improve access to learning for pupils with a diverse range of individual needs.

Implementation

The Primary National Curriculum for Computing can be split into 3 strands:

- Digital Literacy: Pupils learn to use technology to express themselves and develop their ideas.
- Information Technology: Pupils learn to use technology to create programs, systems and a range of content.
- Computer Science: Pupils are taught the principles of information and computation; how digital systems work and how to put this knowledge to use through programming.

At Hazelwood we use Purple Mash to guide our planning and assessment meeting the expectations of the computing national curriculum. Computing is explicitly taught once a week following our Hazelwood computing curriculum and is intricately woven into areas of the curriculum. Furthermore, we have a strong focus on nurturing responsible citizens, therefore online safety is taught through the 'Online safety' unit, as well as through the 'Keeping myself safe' unit in our PSHE curriculum. At the beginning of the year, all pupils sign an acceptable user document to ensure a shared understanding of how to stay safe online.

Hazelwood's Approach to Teaching and Learning

At Hazelwood you will see a range of real, relevant, immersive and purposeful learning opportunities within a nurturing, enabling environment, including the following approaches to teaching and learning:

- Children **exploring and answering big questions** which allow them to think deeply about their learning
- Children **hearing and using key vocabulary** in a range of contexts
- Children **speaking in full sentences** using the key vocabulary taught
- **Cold calling** - supporting all children in engaging in their learning and believing they can achieve
- **Adaptive teaching** - responding to the needs of all children
- **Retrieval practise** – allowing children to know more, remember more and do more
- **Positive relationships and quality interactions** that nurture our responsible citizens
- **Spaced and sequential learning** over time to help children learn more quickly and remember learning better.

In a typical Computing lesson, you will see:

- Children **using chrome books responsibly**
- **Responsible digital citizens** that are conscious of their digital footprint
- Teacher modelling and children using **computational thinking** to develop problem solving skills that can be applied to the wider curriculum beyond computing.

- A lesson purposefully placed in a sequence in order to link learning across the **three strands in the computing curriculum.**
- Children are given ownership of **celebrating and sharing** their computing learning with their peers.

Impact

How do we assess?

We assess our children using a range of methods:

- Routine, embedded, informal formative assessment is built into every lesson.
- Questioning is a large part of our assessment. We use a range of questions to constantly check children's knowledge is secure and that children are learning to think computationally with their new knowledge
- Assessment for Learning is exercised through identifying the correct use of vocabulary. Links between prior and/or upcoming learning are made explicit to allow the children to demonstrate an understanding of the continuum of skills that are woven into the units.
- Teachers are provided with the PurpleMash Assessment Tool spreadsheet that aligns the strand, National Curriculum objective and the unit of work, making it easy to assess whether each child is working towards, has met, or has exceeded that particular objective.
- At the end of each unit, children are asked to complete a quiz specifically around the key vocabulary taught.
- Summative assessment is recorded termly on Scholar Pack, identifying those working at ARE, as well as those below and above ARE.

How do we know that children are at age-related expectation?

- Children are able to meet the learning objective by completing tasks provided.
- Children are able to use the key vocabulary to demonstrate their understanding of lessons taught.
- Children are able to demonstrate computational thinking in their responses to big questions that are written for each unit.
- Children are able to produce or replicate functional programmes, discuss and demonstrate digital literacy and competently use devices in the correct way.
- Children achieve the Purple Mash end of unit outcomes.

Children are working at greater depth if they are able to independently innovate and apply learning in wider contexts to solve more challenging problems.

"How do our children feel about Computing?"

- "I enjoy coding because I man make my characters do what I want."
- "Learning new things that I can do with my computer or tablet is exciting."
- "Computing is fun because we get to create our own games and think about what it can include"

EYFS	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Children have the opportunity to play and explore a range of Technology through their enabling environments and child led learning. There is no longer an Early Learning Goal for Technology. Computing can be linked to Personal, Social Emotional Development, Understanding the World and Expressive Arts and Design.					
Nursery	• Operate a mechanical toy • Swipe an iPad using the touch screen		• Learn to use remote control to turn on IWB • Operate a mechanical toy • Take a photograph on an iPad		• Make toys move or work by pressing switches • use a simple programme on an interactive whiteboard	
Big questions	How does it work?		How does it work? How do you turn it on? How do you take a picture?		How does it work? How can you make a mark on the IWB?	
Vocabulary	iPad, operate, swipe		Remote control, photo app, view photo, zoom, capture picture album		Switches, movement, interactive, operate	

- "I feel safer using the internet because my teacher showed me what to do.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	• Operate simple equipment • Use a remote control • Use touch screen devices		**Keeping Myself safe (PSHE)** • Share ideas about activities that are safe to do on electronic devices. • What to do and who to talk to if they feel unsafe online. • Knowing information can be retrieved from digital devices and the internet • Complete a simple programme • Interact with age-appropriate computer software • Create a video recording or draw a picture on a screen		• Using the internet with adult supervision to find and retrieve information of interest to them. • Developing digital literacy skills by being able to access, understand, and interact with a range of technologies computer, phone, camera, iPad, laptop and tv) • Selecting and use technology for different purposes • Develop basic understanding of action and reaction • Knows how to cause things to happen in computer software (beblots)	
Big questions	How does it work?		How can you be safe when using technology? Who can you talk to if you feel unsafe online? How do you draw a picture? How do you record a video?		How can you find information online? What can you do with technology? How can you make it move?	
Vocabulary	Internet, volume up, volume down, apps, select		Safe, worried, tell, trust, tummy feelings, uncomfortable Video, record, paint, tools, shapes, delete, save		on/off switch, Beebot, instructions, forwards, backwards, turn, rest, memory	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Digital literacy** NCCE - **Teach computing** Computing systems and networks – Technology around us L2 - 5 **Using PM - 2Paint** PM - Unit 1.1 **(Using Wacom drawing tablet)** **Digital literacy** PM - **Online Safety & Exploring** Number of lessons – 4 Programs – Various	**Computer Science** PM - Unit 1.2 **Grouping & Sorting** Number of lessons – 2 Programs – 2DIY **Information Technology** PM - Unit 1.3 **Pictograms** Number of lessons -3 Programs -2Connect, 2Count	**Computer Science** PM - Unit 1.4 **Lego Builders** Number of lessons – 3 Programs – 2DIY **Computer Science** PM - Unit 1.5 Maze Explorers Number of lessons – 3 Programs – 2Go **Online Safety Day**	**Information Technology** PM - Unit 1.6 **Animated Story Books** Number of lessons – 5 Programs – 2Create A Story	**Keeping myself safe** (PSHE) How our feelings can keep us safe – including online safety Know age-appropriate ways to stay safe online. **Computer Science** PM - Unit 1.7 Coding Number of lessons – 6 Programs – 2Code	**Information Technology** PM - Unit 1.8 Spreadsheets Number of lessons – 3 Programs – 2Calculate **Digital Literacy** PM - Unit 1.9 Technology outside school Number of lessons – 2 Programs – Various
Big questions	How do I log in to my chrome book account? What is a password and why should we keep them safe? What is a digital avatar? Where is my work stored on Purple Mash? How do I use a Chromebook? How do I use the trackpad successfully?	In what ways can we sort objects? What is a pictogram? What can a pictogram represent? How can a pictogram be used?	What is an instruction? Why do we need to debug code? What is 2Go? How do I undo a mistake on 2Go?	What is 2Create a Story? What is an animated story? How can I make my story better?	What is coding? Why is it useful to design before coding? How can you make characters move in a 2Code program?	What does a spreadsheet look like? How could you use a spreadsheet to add up values? How could you use the count and speak tools? What is technology? How does technology make our lives easier?
Vocabulary	Log in, username, password, avatar, my work, Topics, log out, save, notification, tools Sort, criteria	Algorithm, Debug, instruction, computer, program pictogram, data, collate	Rewind, direction, left turn, challenge, forward, debug, arrow, backwards, instruction, undo, right turn, algorithm	Animation, font, E-book, sound effect, file, display board	Action, command, code, event, algorithm, input, execute, background, bugging, debugging, instructions, properties, scene, object, run, sound, output, scale, when clicked	Arrow keys, Cells, lock tool, backspace key, clipart, move cell tool, cursor, count tool, rows, columns, delete key, speak tool, image toolbox, spreadsheet

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 2	**Digital Literacy** PM - Unit 2.2 **Online Safety** Number of lessons – 3 Programs – Various **Information Technology** PM - Unit 2.3 **Spreadsheets** Number of lessons – 4 Programs – 2Calculate	**Computer Science** PM - Unit 2.1 **Coding** Number of lessons – 6 Programs – 2Code	**Information technology** PM - Unit 2.4 **Questioning** Number of lessons – 5 Programs – 2Question, 2Investigate **Online Safety Day**	**Rights and Responsibilities (PSHE)** Online Safety- Name ways to stay safe when using the internet. **Digital Literacy** PM - Unit 2.5 **Effective Searching** Number of lessons – 3 Programs – Browser	**Information Technology** PM - Unit 2.6 **Creating Pictures** Number of lessons – 5 Programs – 2PaintAPicture **(Using Wacom drawing tablet)**	**Information Technology** PM - Unit 2.7 **Making Music** Number of lessons – 3 Programs – 2Sequence **Information Technology** PM - Unit 2.8 **Presenting Ideas** Number of lessons – 4 Programs – Various
Big questions	Why is a search bar useful? What is an email? What is meant by my Digital Footprint? Why would you copy and paste when using a spreadsheet? How could a spreadsheet help you when you are planning some shopping?	What is an algorithm? Why is it useful in coding? Why is it important to know there are different object types? If you are good at coding, you don't need to debug. Is this true?	How does a Pictogram show information? How is information organised in a binary tree? How can a database help organise information?	How can I search the Internet?	What are the main features of Impressionism? What are the main features of Pointillism? What are the main features of Surrealism?	What is meant by digital music? How can I change how my music sounds? What is it meant by the tempo of the music?
Vocabulary	Search, display board, internet, sharing, email, attachment, digital footprint Backspace key, count tool, move cell tool, copy and paste, delete key, rows, columns, equals tool, speak tool, speak tool, cells, image toolbox, spreadsheet, lock tool	Action, button, design mode, algorithm, collision detection, event, background, debug, debugging, key pressed, nesting, object, predict, run, test, predict, scale, text, timer, scene, properties, sound, sequence, when clicked, when swiped	Pictogram, collate, avatar, question, binary tree, database, data	Internet, search, search engine	Impressionism, palette, share, surrealism, pointillism, template	Instrument, bpm, soundtrack, composition, sound effects (SFX), volume, tempo

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	**Digital Literacy** **PM** - Unit 3.2 Online safety Number of lessons – 3 Programs – Various **Information Technology** **PM** - Unit 3.3 Spreadsheets Number of lessons – 2 Programs – 2Calculate	**Computer Science** **PM** - Unit 3.1 Coding Number of lessons – 6 Main Programs – 2Code	**Information Technology** **PM** - Unit 3.4 Touch Typing Number of lessons – 4 (+ consolidation lesson publishing something using touch typing) Programs – 2Type **Online Safety Day** **(D&T) Technical skill**: Structures -Shell structures with computer aided design **Design Brief:** Design and make a Desk Tidy to store all those 'easy to lose' desk items. **(Using Wacom drawing tablet)**	**Digital Literacy** **PM** - Unit 3.5 Email (including email safety) Number of lessons – 6 Programs – 2Email, 2Connect, 2DIY	**Keeping myself safe (PSHE)** Staying safe online – recognising potential risks associated with browsing online. **Information Technology** **NCCE - Teach computing** Data and information – Branching databases. Number of lessons – 6	**Information Technology** **PM** - Unit 3.8 Graphing Number of lessons – 3 Programs – 2Graph **Information Technology** **PM** - Unit 3.9 Presenting with Google Slides Number of Lessons 4 Programs - Google Slides
Big questions	What is a password and why should we keep them safe? Is everything I read on the Internet true? How do I know if I am old enough to play a computer game? Explain how you would collect data to find out children's favourite school subjects. What sort of graph would you create? How can you make a 3 times table machine using the spin tool? Could you use the	Why is it useful to use a flowchart to design a computer program? What does repeat mean in computer programming? What is the difference between 'timer after' and 'timer every'?	Why should I have a good posture at the computer? Why should I type certain keys with certain fingers?	What is email? What should I do if I receive an email that makes me upset or scared? What information can I send in an email?	What is meant by data? What is a database? What is a branching database?	What is a graph? What are the frame lines on the graph called? What different kinds of graphs are there? What is a presentation program used for? What features can you use to make a presentation more engaging? How do you add a transition to a presentation?

	equals tool to check your answer? Explain how you would locate a cell in the advanced mode?					
Vocabulary	Password, blog, website, internet, concept map, webpage, spoof website, PEGI rating, username Columns, move cell tool, cells, delete key, spin key, rows, advance mode, copy and paste, equals tool, spread sheet	Object, properties, sound, test, output, repeat, timer, plan, sequence, values, predict, scene, procedure	Posture, top-row keys, home row keys, bottom row keys, space bar Communication, Report to the teacher, Password, Attachment, email, compose, address book, cc, formatting, send, save to draft	Communication, Report to the teacher, Password, Attachment, email, compose, address book, cc, formatting, send, save to draft	Risk, browsing, phishing search engine, fake news internet safety Branching database, database, question, data	Graph, bar chart, pie chart, field, data, block graph, row, column, line graph, Animation, presentation, text book, design themes, presentation program, text formatting, transition, slide, font, media, slide show, word art

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	**Digital Literacy** PM - Unit 4.2 **Online safety** Number of lessons – 4 Programs – Various **Information Technology** NCCE **- Teach computing** Computing systems and networks – The Internet Number of lessons – 6	**Computer Science** PM - Unit 4.1 **Coding** Number of lessons – 6 Programs – 2Code	**Information Technology** PM - Unit 4.3 **Spreadsheets** Number of lessons – 6 Programs – 2Calculate. **Online Safety Day**	**Computer Science** PM - Unit 4.8 **Hardware Investigators** Number of lessons – 2 **Information Technology** PM - Unit 4.9 **Making Music** Number of Lessons – 4 Main Program – Busy Beats	**Keeping Myself Safe (PSHE)** Managing risk, including online safety - strategies for safe online sharing. - implications of sharing images online without consent **Information Technology** PM - Unit 4.4 **Writing for different audiences** Number of lessons – 5 Programs – 2Email, 2Connect, 2DIY **(Using Wacom drawing tablet)**	**Computer Science** PM - Unit 4.5 **Logo** Number of lessons – 4 Programs – Logo **Information Technology** PM - Unit 4.6 **Animation** Number of lessons – 3 Programs – 2Animate **(Using Wacom drawing tablet)**
Big questions	What is meant by a digital footprint? What is SPAM? What is meant by plagiarism? What is a search engine?	Can you explain the stages of the design, code, test, debug coding process? What does selection mean in coding and how can you achieve this in 2Code? How can variables be useful when coding programs with selection?	How would you add a formula to show a percentage score for a test? Can you give an example of the data that could be best represented by a line graph? Which tools would you use to create a timed times tables test in 2Calculate? How can we use spread sheets in real live situations?	What is the difference between hardware and software? What is the difference between melody and rhythm?	Why should I change the font when I am writing?	What is Logo? What is an animation? What is meant by onion skinning? What is meant by stop motion animation?
Vocabulary	Computer virus, digital footprint, phishing, cookies, email, plagiarism, copyright, malware, identity theft, malware, spam Easter egg, internet, internet browsing, search, search engine, spoof website, website	Action, button, debug, debugging, alert, code block, execute, background, co-ordinates, command, if, flowchart, If/else, prompt, selection, prompt for input, timer, nesting, number variable, repeat, object types, variable value, properties, predict, repeat until	Formula Wizard, random tool, spreadsheet, move cell tool, spin tool, timer	Privacy, privacy settings, security, consent, implications Motherboard, CPU, RAM, graphics card, network card, monitor, speakers, keyboard and mouse. Pitch, tempo, melody, rhythm, dynamics, rippler, pulse, texture, house music	Font, bold, italic, underline	Logo, RT, SETPC, LT, BK, STEPS, REPEAT, FD, PD, PU Animation, onion skinning, sound, flipbook, background, stop motion, frame, play, video clip

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	**Digital Literacy** PM - Unit 5.2 Online safety Number of lessons – 3 Programs - Various **Information Technology** PM - Unit 5.3 **Spreadsheets** Number of lessons – 6 Programs – 2Calculate	**Valuing Differences (PSHE)** Influence and pressure of social media **Computer Science** PM - Unit 5.1 **Coding** Number of lessons – 6 Main Programs – 2Code	**Information technology** NCCE **- Teach computing** Flat-file Databases Number of lessons – 6 Programs – **Online Safety Day** **(D&T) Technical skill:** Structures, Mechanical systems and Electrical & Computer Program Systems. **(Using crumble)**	**Information technology** NCCE **Teach computing** Creating media: Intro to vector graphics (Number of lessons – 6) **(Using Wacom drawing tablet)**	**Keeping Myself Safe (PSHE)** Managing risk, including online safety - consequences of not keeping personal information private and the risks of social media. **Computer Science** PM - Unit 5.5 Game Creator Number of lessons – 5 Programs – 2DIY 3D	**Information Technology** PM - Unit 5.8 Word processing (with Google Docs) Number of Lessons – 6
Big questions	What does simulate a physical system mean? Describe how you would use variables to make a timer countdown and a scorepad for a game. What do the terms decomposition and abstraction mean? Use examples to explain them.	Sharing, acquaintances, Influence, pressure How would you add a formula so that the cell shows the product of two other cells? What would you use in 2Calculate to have a cell that automatically calculates the number of days since a certain date? Explain what a spreadsheet model of a real-life situation is and what it can be used for?	What is a database? Why is the collaborative feature important? In what ways can I sort information in a database?	What is the 2DIY3D tool on Purple Mash? What makes a good computer game? Why is it important to continually evaluate your game?	Consequences, reactions, cyberbullying dare, pressure, resist pressure, assessing risk, Assertive, personal information Who do I tell if I see anything online that makes me upset or scared? Why are passwords so important? Why is it important to reference sources in my work?	What is a word processing tool used for? What features can you use to make a document more readable? How do you successfully add an image to a document?
Vocabulary	Action, button, decomposition, abstraction, called, event, co-ordinates, algorithm, function, if, run, simplify, nesting, repeat, simulation, object, score, sequence, timer, variable, physical system, properties	Average function, charts, random tool, advance mode, equals tool, rows, copy and paste, formula, spreadsheet, columns, formula, cells, formula wizard, timer, move cell tool	Avatar, collaborative, record, binary tree, data; sort, group and arrange; charts, database, find, table; statistics and reports Animation, image, texture, computer game, instructions, perspective, customize,	Animation, image, texture, computer game, instructions, perspective, customize, interactive, evaluation, screenshot, playability Online safety, encryption, plagiarism, smart rues, identity theft, citations,	Computer aided design (CAD), viewpoint, 3D printing, modelling, 2D, points, Polygon, 3D, net, template Audience, concept map, node, collaboratively, connection, thought, concept, idea, visual,	Copyright, in-built styles, text formatting, cursor, merge cells, text wrapping, document, paragraph formatting, textbox, font, readability, template, word processing tool

			interactive, evaluation, screenshot, playability	password, shared image, reference, reputable, bibliography		

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 6	**Digital literacy** **PM** - Unit 6.2 Online safety Number of lessons – 2 Programs – Various **Information Technology** **NCCE - Teach computing** Creating media - web page (google sites) Number of lessons – 6	**Computer Science** **PM** - Unit 6.1 **Coding** Number of lessons – 6 Main Programs – 2Code **(D&T) Technical skill:** Textiles **Design Brief:** Design and Make a Designer Waistcoat for the Class Fashion Show. **(Using Wacom drawing tablet)**	**Information Technology** **NCCE - Teach computing** Data and information - Introduction to Spreadsheets Number of lessons – 6 **Online Safety Day**	**Rights and Responsibilities (PSHE)** Understanding media bias, including social media **Computer Science** **PM** - Unit 6.5 **Text Adventures** Number of lessons – 5 Programs – 2Code, 2Connect **(D&T) Technical skill:** Textiles & Computer Program Systems **(using micro:bit)** **Design Brief:** Design and make a sample soft toy that has an electronic display for the MAGIC toy company.	**Keeping Myself Safe (PSHE)** Staying safe online - risks and legality of communicating and sharing online. **Information Technology** **PM** - Unit 6.7 **Quizzing** Number of lessons – 6 Programs – 2Quiz, 2DIY, Text Toolkit, 2Investigate	**Growing and Changing (RSHE)** Keeping Safe – Risks of sharing images online and how online influences can cause people to take unsafe risks. **Computer Science** **NCCE - Teach computing** Computing systems and networks - Communication and collaboration
Big questions	Why do I need to be aware of the dangers of being online? What is meant by my digital footprint? Why is it important to think about how much time use a screen for? What is a blog? What can a blog be about? How are the audience involved in a blog?	How can you use Tabs in 2Code Gorilla? What is a function in coding? Give an example that you have used in 2Code Gorilla. In 2Code Gorilla, how can a program receive user input?	How would you add a formula so that the cell shows the total of a column of cells? What is a computational model and what it can be used for? If you were going to use a spreadsheet to plan your dream holiday, what data would you collect to cost the trip?	What is a text-based adventure? Why is it important to plan a text-based adventure?	What factors do you need to consider when creating a quiz? Name three question types in 2Quiz. Apart from the questions, what else does a quiz need to contain?	

Vocabulary	Digital footprint, PEGI rating, screen time, password, phishing, spoof website Audience, blog page, collaborative, blog, blog post, icon	Action, button, debug, alert, called, decomposition, algorithm, background, button, called, command, co-ordinates, developer, nested, event, scene, flowchart, object, selection, simulation, predict, string, procedure, get input, properties, tab, timer, user input, launch command, repeat, variable, run,	Average function, columns, count tool, advance mode, cells, dice, copy and paste, charts, equals tool, move cell tool, random tool, formula, timer, spreadsheet, rows, spin tool, formula wizard	Biased, social media, unbiased profile, fact, image opinion online safety stereotype sharing text-based adventure, concept map, debug, sprite, function	right to privacy, sharing online, permission, illegal, sexual images Audience, collaboration, concept map, database, quiz	Internet, network, router, local area network (LAN), network cables, world wide web, Wide area Network (WAN), wireless

*PSHE links to online safety

*D&T links to CAD and programming